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Quarterly of the American Primrose Society

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Cover Photo: A green edged show auricula grown by Ivanel Agee.

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Published four times a year: Winter, Spring, Summer, Fall.
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American Primrose Society

Membership (including Quarterly subscription): $5.00 per year, $14.00 for three years paid in advance. Ten old copies of the QUARTERLY are available for $3.65, and Pictorial Dictionaries at $3.00 each, postage included, at the Treasurer's Office—Treasurer, Mrs. John Genheimer, 7100 S.W. 209th, Beaverton, Oregon 97005. (Free cultural chart and Seed Exchange privileges with new memberships.) All dues are payable each November 15 and should be sent to the treasurer: MRS. JOHN GENHEIMER, 7100 S.W. 209th, Beaverton, Oregon 97005.
Dear Members:

"Show-time" the time of the year we all have been anxiously looking forward to has arrived. Do you have all of your potting and grooming complete? Let's not wait until the last minute to take care of such an important project. Should you expect your prize plants to survive the show, please remember to give them a good soaking for at least an hour, then let them drain well before taking them to the show. Reminding you, this will also help in keeping the tables much neater. In order to make the show a real success we need the cooperation of all members. Please plan on attending with your most treasured plants.

Along with show time it will also be time for election of Officers. I have appointed a nominating committee to recommend a slate of Officers, however, nominations will be accepted from the floor. Only paid members can vote or be nominated for an office. Those planning to attend the Banquet and/or the National Annual Meeting please contact Mrs. William Tate, 1006 — 40th Street, Milwaukie, Oregon 97222 or call her at Milwaukie 654-3361.

This year, 1974, the Oregon Primrose Society will host the National Show, the dates being April 6 and 7. Location, Milwaukie Community Club, 42nd and Jackson Street, Milwaukie, Oregon. Time 2:00 P.M. to 8:00 P.M. Saturday, April 6 and 1:00 P.M. to 6:00 P.M. Sunday, April 7. The Annual meeting will be held on Saturday April 6 at 6:30 P.M. at the Rose Manor Inn, 4546 S.E. McLoughlin Blvd. Portland, Oregon. Those planning to attend contact Mrs. William Tate, 1006 40th Street, Milwaukie, Oregon 97222, or call her at Milwaukie 654-3361. Reservations are $3.75 per person. The feature speaker will be Mr. Claude Mills. I will be looking forward to seeing all of my many friends at the shows. This year I plan to show my Green Double. This double is the fifth generation of crosses, and at present it is partially opened so it should be in full bloom by show time. I feel it will be well worth coming to see.

Your President,
Al Rapp

Down the Primrose Path
With the Editor

Show fever is in the air! The excitement of a primrose show makes me want to hurry those newly planted seeds into a blooming plant overnight! That excitement also takes me back to the first Primrose Show I entered. How I worked on those plants, arranging each floret and leaf, removing every speck of dirt from the pots. We were viewing some home movies recently, and there I was with my blue ribbons and plants, just home from that first show, bursting with pride.

You will find this issue contains several reprints from older Quarterlies. I've had many requests for some of these. It might be appropriate here to mention a great many of these old volumes are still available. They contain much valuable information unobtainable elsewhere.

The Editor would like to receive requests for articles from the membership. The task of editing such a publication as this is sometimes frustrating, as there is very little material contributed on a voluntary basis except by a few most helpful people.

You will find the Primula Chromosome Count reprinted in this issue as well as another reprint on color. Please refer to both as the pollinating season commences. Try something new this year! Roy Genders suggests in his book The Polyanthus the use of P. rosea to instill hardiness into the pink polyanthus. He also mentions using P. amoena for the same purpose. I tried the polyanthus-rosea cross several years ago, and came up with several interesting plants which had to be left at the other house.

We are locally currently going through the annual "what-is-the-plant-that-blooms-so-early" mystery. The plant is one which most obtained from a grandmother or mother, and has been called Juliana "Springtime", P. sibthorpiii, etc. It blooms just after Christmas if the weather is mild, is of acaulis form with a thrum eye. Some of us now believe it to be P. altiaca, and so goes the mystery for another year. Do any of you know the answer?

Another plant masquerades with improper names. Please read the reprinted article on Primula amoena in this issue.

As many names are still coming in, the Yearbook which was to be printed in this Quarterly, will be printed instead in the Summer issue.

Our APS member Mrs. Erastus Corning, II of Albany, New York is currently undertaking some needlepoint designs for the new headquarters of the American Horticultural Society at Mt. Vernon, Virginia. Mrs. Corning plans to incorporate the insignia of all the national plant societies, including the American Primrose Society.

AMERICAN PRIMROSE SOCIETY
Styles in the fashion world are constantly changing... and just to show that we women are not the only ones who enjoy change, read the article on the changing styles in the auricula world. Those popular twenty or more years ago and thought lost are with us again in renewed popularity!

---

In Memoriam
Tribute to Floyd Keller
By Dorothy Springer

Floyd H. Keller, a life member of the Tacoma Primrose Society passed through the Garden Gate February 26, 1974 in Tacoma, Washington.

Floyd was my friend, and I feel honored to be able to write this tribute. He would not want a flowery piece written. His soft and generous heart was hidden beneath a sometimes gruff exterior.

Floyd loved flowers, especially primroses and chrysanthemums. His "special" primroses were the jack-in-the-green, hose-jn-hose, gold laced, and the Cowichans. He worked long and hard on a hybridizing program involving those special groups and always had a new one to show or tell about. He was constantly giving plants to people to interest them in primroses. My own garden is filled with plants from Floyd and Hazel's garden, and they will always be a living reminder of their kindness.

I will miss Floyd, the Tacoma Society will miss Floyd, and the American Primrose Society and all his friends will miss him.

Deadline for Summer issue is June 29, 1974!!!!!!!!!

---

NATIONAL AURICULA AND PRIMULA SOCIETY — Northern Section
Invites all Auricula and Primula Lovers to join this Old Society
Membership of $1.75 per year includes Year Book
Hon. Sec., Mr. J. Robinson
584 Edenfield Rd., Norden Rochdale, Lancs, England

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1974 Show Dates

Tacoma Primrose Society: March 30 and 31 at the Pacific National Bank of Washington—Villa Plaza Branch, 10225 Gravelly Lake Drive S.W.


V.I. Rock and Alpine Garden Society: April 5 and 6 in the Memorial Hall at 851 Rockland Avenue, Victoria, British Columbia. Admission 50 cents.

National Show: April 6 and 7: Milwaukee Community Club, 42nd and Jackson Street, Milwaukee, Wisconsin.

Annual Meeting: Mrs. Dorothy Dickson, Chairman of the nominating committee, submitted the following slate of officers: Richard Charlton, President; Mrs. Rosetta Jones, Vice President; and Mrs. Lu Dines, Recording Secretary. Nominations will also be accepted from the floor.

Meeting location: Rose Manor Inn, 4546 S.E. McLoughlin Blvd., Portland, Oregon. Time: 6:30 p.m.

The 27th annual Primrose Show at Mt. Angel will be held the Sunday after Easter on April 21, 1974, opening at 12 noon, in the Kennedy High School on East Marquam St. It will be open to the public throughout the afternoon.

There is no entrance fee and no charge for exhibiting.

WANTED: The following issues of the APS Quarterly are needed to complete sets currently being compiled by Herb and Dorothy Dickson. If you are willing to part with the needed copies, please contact the Dicksons. 4 copies of Spring issue 1944; 3 copies of Summer 1944; 4 copies of Winter 1946; 4 copies of April Spring 1949; 3 copies of Fall 1954; 3 copies of Fall 1956.

---

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PRIMULA CHROMOSOME COUNT

By request of those interested in hybridizing, the chromosome count of the following list of Primula species, as published in the Chromosome Atlas of Cultivated Plants by Darlington and Janaki Ammal, is reprinted.

PRIMULA x = 8, 9, 10, 11, 12, 13

Section 1: SOULIEI x = 8
Rupicola
Inayatti

Section 3: FARINOSAE x = 8
(I) Blandula
Caldaria
Genestaniera
Glabra
Knuthiana
Sertulum
Stenocalyx

(II) Exigua
Frisia

Section 4: CAPITATAE x = 9
(I) Blandula
Capitata
Crispata
Lacteocapitata
Mooreana

Section 5: MALACOIDES x = 9
Sphaerocephala
Effusa
Ma-lacoides
^o

Section 6: VERTICILLATA x = 9
Verticillata

Section 7: AURICULA x = ll; x 3rd power = 31 (9 + 11 + 11)
Kewensis (flor. x vert.)
Hirsuta
Hortensis
Palinuri
Minima
Marginata

Section 8: MUSCARIOIDES x = 10
Atricapilla
Bellidifolia
Cernua
Littoniana
Apoletta
Cyanantha
Apoclita

Section 9: SOLDANELLOIDAE x = 10
Atricapilla
Capitellata

Section 10: YUNNANENSIS x = ll
Winteri

Section 11: MINUTISSIMAE x=ll

Section 12: CUNEIFOLIA x = ll

Section 13: DENTICULATA x = ll

Section 14: SIKKIMENSIS x = ll

Section 15: CANDELABRA x=ll

Section 16: GRANDIS x-11

Section 17: ROTUNDIFOLIA x-11

Section 18: NIVALES x-11

Section 19: PETIOLARES x-11

Section 20 VERNALES x-11

Section 21: MEGASEAFOLIA x = ll

Section 22 VERNALES x-11

Section 23: CORTUSOIDES x-11

Section 24: BULLATAE x-12

Section 25: SINENSIS x-12

Section 26: OBCONICA x-12

Section 27: PYCNOLOBA x-12

Section 28: REINIT x-12

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RUTH BARTLETT HUSTON
SEVEN ASPECTS OF COLOR
George L. MacAlevy
Reprinted in part from April 1951 Quarterly

Aspect I  Theory

There are two basic theories of color in use from a pigment point of view which is the standpoint from which all artists regarded color up until the time of the Impressionist artists of the late 19th century. At that time, color as expressed by light and play of light in the realm of physics was introduced and the Physical Theory involving the shift of one of the primary colors was used. But this had then to be translated back to the Basic schemes to put it on canvas.

The most important and most used theory is known as the Six Color Theory which involves three primary colors: yellow, red and blue; three secondary colors: green, violet and orange; and six tertiary colors (see Figure 1).

The other theory is the Five Color or Munsell Theory involving five primary colors: yellow, green, blue, violet and red; and five secondary colors (see Figure 2). For the balance of this discussion the Six Color Theory will be used as a basis. Translation to the Five Color Theory can be done by any reader so interested.

The pure hues of the Hue Plane in Figure 1 are merely a slice of the color sphere cut through at the equator. A glance at Figure 3 shows the relationship between the colors at the equator to white (presence of all color) and black (absence of all color) at the poles. All the tints of colors lie between the equator and the white pole. All the shades between the equator and the black pole.

This tinting or shading of a color introduces another attribute in addition to the Hue. This attribute is called Value. In Figure 1, it can be noted that each color is diametrically opposed by its opposite color. As we transverse through the center of the sphere toward the opposite the starting point color is gradually diluted by this opposite color until at the center we have equal proportions of the two. This is the neutral point and is called gray. Actually this is brown in as many instances as it is gray. This transition comprises the third attribute of a color, viz., Purity. The Value and Purity scales of Red are shown in Figure 4. Green, being the opposite color to red, is necessarily involved in the Purity scale. Similar scales can be derived for any color by reference to their position in Figures 1 and 3.

In a Dictionary of Color by Maerz and Paul, these three attributes of a color are referred to as:

Attribute X—Value: Degree of tint or shade.
Attribute Y—Purity: Degree of grayness.

Attribute Z—Hue: The color itself.

Note: In physical analysis of colors by means of light and not pigment, the three primary colors are red, green and blue. For practical purposes, this, however is not too useful. This is called the Theory of Color Sensation by physicists.

Aspect II  Harmony

To properly use colors we must have an inkling of their harmonious relationships. The system of Harmony evolved through the epoch of civilized man is fairly simple in that five basic patterns cover it for all practical purposes. Referring again to Figure 1, we see that each color is diametrically opposed by what we called earlier its opposite color. The combination of these two opposite or complementary colors constitutes a

Fig. 1. Hue Plane — Six Color Theory
(1) Primary Colors. (2) Secondary Colors. (3) Tertiary Colors.

Complementary Harmony as is represented in Figure 5. All the values and purities must be considered here too. If we go up the sphere to use a tint of Red, its complement will be a Shade of Green, as the line between the two complements will always pass through the center of the sphere (Fig. 3).

A related Harmony is the Split Complement shown in Figure 6. Here a color is used with the colors adjacent to its complement.

AMERICAN PRIMROSE SOCIETY
Another variation not illustrated is the Double Complement wherein two adjacent colors and their complements (of necessity, also adjacent) are used. For instance violet and its complement yellow would be used with red violet and its complement yellow green (chartreuse).

One of the simplest of all Harmonies is the Monochromatic in which but one color with its tints, shades, and grayed tones is used. (Figure 7). White and black are often used in Monochromatic Harmonies to paint a garden picture. Three years ago, the first prize garden at the New York Garden Show was a complete garden with no color but green set off with white flowers.

The Analagous Harmony (Fig. 8) differs from the Monochromatic in that up to three neighboring colors together with their tones, tints and shades can be used with most pleasant results. For some reason, anala-gous harmonies are almost a rule for dining room color schemes with a majority of interior decorators.

The final major Harmony is the Triad. The Triad illustrated in Figure 9 is called the Primary Triad as it is composed of the three primary colors which lie all 120 degrees one from the other on the Hue plane. The Triad composed of the three secondary colors—orange, violet and green—is often referred to as the Chinese Triad as it was a major factor in older Chinese art.

There are other Triads which are not quite as geometrically regular. One could use a Triad with yellow as one leg but substitute red violet for red and blue green for blue. But to venture farther away would lead to color clashes. Compressing two legs of a Triad towards each other leads directly into the Split Complementary type of Harmony.

Proper use of color also requires a balance be maintained. The complement of any primary color is a secondary color. It takes more of a secondary color to balance out a primary. For instance, equal blocks of red and green do not balance. The red will dominate. Careful additions to the green or subtraction from the red (this may be achieved by using a grayed red) is necessary here. The limits are not exact, however. Balance will be discussed again under another Aspect.
takes the edge off our nerves and soothes. Red is harsh while green is soft. Nature is mostly green and most of us have seen much more green than any other hue. We take it for granted, whereas red is more unusual to us. It startles, shouts at us, and burns the retinas of our eyes. Red is hot and we feel uncomfortably warm in a red kitchen. Green is cool but a living coolness that is pleasant.

Blue is cool too, but a dead cool. Minute graduations of shading in blue suggest to us vast, cold, impenetrable depths like the deep blue sky at night. October's bright blue weather does not seem dead because the blue is full of violet at that time of year.

Blue greens such as aquamarine and turquoise are cool and pleasant colors—enough green to suggest life and enough blue to suggest moisture.

Violet is used by many to suggest royalty, great solidity, and other allied sensations. In its tints and hues on the red side it can and does be-

some green yellows suggest illness to the point some people actually become nauseated. These same hues tinted properly are very restful and cooling to the same people. As we approach orange through the orange yellows, we are reminded of gold and opulence and all that goes with it. The warmth of the color increases and as we go into orange the opulence disappears and all is rather commonplace.

![Fig. 5. Complementary Harmony](image)

Aspect IV Chemistry of Color in Plants

Color in flowers is composed of three basic chemical groups: anthocyanins, anthoxanthins and plastids. The most important of these is the anthocyanin group providing the reds, violets and blues which predominate in flowers. These are napthalene ring compounds with a phenyl ring attached at the two position, the three basic compounds being: (1) pelargonidin in which the phenyl ring contains a hydroxyl group at the four position on the phenyl ring; (2) cyanidin in which hydroxyl groups are attached at the three and four positions; and (3) delphinidin in which hydroxyl groups are attached at the three, four and five positions. All three of these compounds exist as glycosids, i.e. in compounds with attached molecules of sugar. One of these sugar molecules is always attached at the three position. As sugar attaches at the three and five positions, the only other open to it is the five position, or to the sugar molecule already attached at three. An increase in the number of sugar molecules attached increases the blueness of the compound involved. These positions for glycoside attachment are on the napthalene ring whereas the methyl substitutions next discussed are on the phenyl ring. Methylation consists of replacing a hydrogen of an hydroxyl group with a methyl radical. This increases the redness of the compound. As the para position is never methylated, no methylation is possible in pelargonidin while cyanidin may be methylated at the three position, and
delphinidin at the three position or at both the three and five positions. Thus we have a range of twelve possible anthocyanins:

1. Pelargonidin 3 monoglycoside (scarlet)
2. Pelargonidin 3-5 diglycoside (scarlet-magenta)
3. Cyanidin 3 monoglycoside (red)
4. Cyanidin 3-5 diglycoside (crimson)
5. 3'-0 methyl cyanidin 3 monoglycoside (peonidin)
6. 3'-0 methyl cyanidin 3-5 diglycoside
7. Delphinidin 3 monoglycoside (blue)
8. Delphinidin 3-5 diglycoside
9. 3'-0 methyl delphinidin 3 monoglycoside
10. 3'-0 methyl delphinidin 3-5 diglycoside
11. 3-5 methyl delphinidin 3 monoglycoside
12. 3-5 methyl delphinidin 3-5 diglycoside (Malvadin blue)

The concentration of these materials in the sap as well as the amount and presence of other coloring materials are other variables which lead to the immense number of different shades, tints and tones which exist in flowers whose main source of color is anthocyanin derivatives.

The anthoxanthin colors are also sap soluble compounds of similar chemical structure. There are two basic groups of these: flavones and flavonals. Flavones have no hydroxyl group at the three position on the phenyl ring whereas flavonals do. These compounds also exist as glycosides in plant colors. The flavones are pale ivories and soft yellows, whereas the flavonals are richly yellow.

When no anthocyanin matter is present, anthoxanthins are responsible for the color entirely. In combinations with anthocyanins, flavonals blend and are equally responsible with the anthocyanin for the color, whereas a flavone acts more as a co-pigment and does not directly affect the color. However, flavones may intensify the blueness of an anthocyanin.

Plastids are insoluble coloring bodies such as carotene (orange) xanthophyll (yellow) and chlorophyll (green). No copigmentation with plastids is possible because of their insolubility. With anthoxanthins they help supply the color because of their similarity in color whereas with anthocyanins, plastids furnish only a background effect.

Aspect V The Genetics of Color

By using the materials of Aspect IV we may now set down a list of ten color situations possible in plants:

I. Increase of hydroxyl groups
II. Increase of sugar molecules
III. Increase in methylation
IV. Increase in Ph
V. Co-pigmentation
VI. Collodial condition

Of these first six, numbers I, II, IV, V, and VI increase blueness in anthocyanins while III decreases blueness.
bluest of our population then would be a double dominant pairing. Counts of progeny from a cross put into ratio form and applied to Mendel’s laws will often reveal to us what colors are involved and the gene segregation in them. Then we can hand pick future plants for breeding accordingly and arrive at our point of aim many generations sooner.

![Diagram of color spectrum]

**Fig. 9. Triad Harmony**

Aspect VII Color Nomenclature

One of the most confused situations in horticulture is the nomenclature of color. No one set of standards has been adopted by the horticultural field as a whole. At the present time in this country several specialized charts or systems are used for specific genera and the rest of the genera use one or more of the various other color charts on the market.

The American Iris Society has a simple system of number and letter symbols which determine a series of color ranges. Any Iris will fall within the confines of one of these ranges, but at best it gives only a hazy idea of the color of any individual clone.

The New England Gladiolus Society has a single sheet color card which is very inadequate even for Gladiolus and highly impractical for any other genera.

Koster’s Color Guide, while very admirable in its looseleaf makeup, is inadequate in the number and range of colors presented, although many nurseries use it.

Ridgeway’s has quite a range of colors but the naming is meaningless and the general background of the system faulty and outmoded.

The R.H.S. Color Chart is very good, based on the Six Color Theory and indexed to this theory. There are two hundred, each with four color panels. These four panels are the color named and three tints of it. Sixty-four of these plates are of pure hues and are keyed with the color number, as 24. There are sixty plates of tints. In these the basic number is prefixed with a 6, 5 or less to indicate a tint, as 624. This indicates that the named color on the plate is No. 24 once tinted; 524 is No. 24 twice tinted, etc. The three lighter tints on each plate are also numbered 1, 2, 3 (lightest).

There may be some overlapping between plates as 24/1 may be the same tint as 624. There are also 38 plates of shades in which the Hue number is prefixed with a 7, as 724 if once shaded, 824 if twice shaded. The basic color of the remaining thirty-eight plates are grayed hues. These are prefixed with o (o24) to indicate once grayed, oo (oo24) to indicate twice grayed, etc. An example of this system is the eight plates making up the Magenta system:

<table>
<thead>
<tr>
<th>Plate</th>
<th>Color Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Magenta—Pure hue</td>
</tr>
<tr>
<td>027</td>
<td>Magenta Rose—Once grayed</td>
</tr>
<tr>
<td>0027</td>
<td>Erythrite Red—Twice grayed</td>
</tr>
<tr>
<td>627</td>
<td>Fuchsia Pink—Once tinted</td>
</tr>
<tr>
<td>527</td>
<td>Rhodamine Pink—Twice tinted</td>
</tr>
<tr>
<td>427</td>
<td>Rose Pink—Three times tinted</td>
</tr>
<tr>
<td>727</td>
<td>Tyrian Purple—Once shaded</td>
</tr>
<tr>
<td>927</td>
<td>Ruby Red—Twice shaded</td>
</tr>
</tbody>
</table>

**NATIONAL AURICULA AND PRIMULA SOCIETY — Midland Section**

Invites all Auricula and Primula Lovers to join this Old Society

Hon. Sec., Mr. P. Green
“Heronfoot,” Balsall Common, Coventry, Warwickshire, England

**Application for Membership**

Mrs. John Genhiemer, A.P.S. Treasurer
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AMERICAN PRIMROSE SOCIETY
**PRIMULA RUBRA**

By Dorothy Campbell

This primula of the Auricula section (subs. Erythrodrosum) is also known as Primula hirsuta. It is widely responsible for the hybridization of the present day auricula. It is somewhat smaller in stature than the average auricula, never the less it is a cutie and an admirable plant to have, and well worth growing. It is rather floriforous having water stand on the crown, at least to my knowledge. The yellow is called the "MOONLIGHT" Primrose and referred to as P. aplicola var. LUNA. It is one of the most fragrant members of the Sikkimensis group, called BELLED as the florets hang on a one sided cluster. There are two other forms, P. violacea often listed as P. microdonta var. alpicola. The nodding bells in a cluster of often 16-18 florets in lavender, lilac, purple and one strain is a soft smoky lavender which is most unusual. The white form which edged the bed was planted to give a semblance of airiness. For this reason it is more attractive to have a planting of 10 to 20 plants which bloom late in the season. The low stone wall giving a semblance of airiness. For this reason it is more attractive to have a planting of 10 to 20 plants which bloom late in the season. The low stone wall

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**QUESTIONS AND ANSWERS**

Answers by Alice Hills Baylor, Corresponding Secretary

Stage Coach Road, Rt. 2, Stowe, Vermont 05672

Q. Will seed of P. auricula germinate after two years in a seed envelope?

A. Yes, I have germinated auricula seed that was three years old. If one has any difficulty use the alternate hot water (100 degrees) and crushed ice treatment. This is not true of many other Primulas.

Q. Is the sediment soil cleaned from my natural clay bottom pools suitable for Primroses? It is as muck from a bog.

A. Such silt is excellent mixed with humus and fertilizer. In mid summer we clean our natural pools of soil that has washed into them and settled to the bottom. The muck is scooped up in a bucket and topped with a heavy layer of leaf mold to keep the watery soil from spilling when we take it to a planting area in our garden tractor. At that time Primroses were being transplanted and beds being remade for divisions and transplants. If there is no area being remade pour silt over the compost pile and add fertilizer.

Q. I should like to grow Primroses on the edge of a Rhododendron planting. Can I mulch with pine needles?

A. I have dwarf Rhododendrons and Primroses growing together. If your planting is large there is no difficulty. I have P. margarita, rosea and sieboldii growing near the Rhododendrons with double auriculas on the edge each...

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plant having a piece of Indiana limestone over its roots. All are doing well. In Scotland I saw a Rhododendron planting edged with peat blocks in which were growing P. marginata, & Gentiana acaulis.

Q. Is bark a good soil conditioner?
A. Every year I have bought a truck load of bark from the lumber mill. The first year it is used copiously in paths. The second year it is used as mulch and the third year it is used in the soil as humus. It is handy to have bark in the paths when wanting a trowel full to mulch a plant or to fill in when a plant is lifted.

Q. Can you give me some information on P. macrocalyx?
A. This with P. columnae and P. pandonica have been given to geographich forms of P. veris.

Q. Which is the best garden subject, P. kisoana or P. polyneura? Which is P. heucheri-panonica have been given to geogra-
A. P. kisoana is a choice miniature 3-4 inches, the entire plant is covered with white hairs which gives it a glistening appearance for it shines in sunlight. The three to five large flowers are on a short stalk in a deep rose shade. They appear often a foot away. The three to five large flowers are on a short stalk in a deep rose shade. They are not difficult from seed but division is easy as the roots run underground horizontal from the parent plant and small plants appear often a foot away. It is a native of Japan. When the plant first breaks the ground in spring it appears as a ball of white cotton, from which the handsome foliage develops. P. polyneura is a larger plant in the same group (Cortusoides). The foliage is dentate and on longer stems, the flower stalk often 10-12 inches, slender and dainty topped by a cluster of 12-14 florets in a variety of shades of rose, pink, purple with an orange eye. These forms have been listed as P. veitchii and P. lichiangensis. From a packet of seed one may have a variety of colors in flowers and also some plants will be larger than others when mature. Both P. kisoana and P. polyneura are choice garden plants that bloom later than the Vernales. If left they will develop into large clumps in a rich, well drained shaded location. P. heucheri-folia has never proved long lived with me.

Q. Should the sittings from cleaning Primrose seeds be planted?
A. Yes, by all means, I always have a flat ready just for sittings and some of the finest plants came from this flat. A mixture of all types but some beauties.

Q. Can you give me any information on P. rusbyi?
A. This is a native of moist mountain slopes in New Mexico and Arizona, the color of the corolla may vary from red to purple to lilac. Its habitat is likened to that of P. parryi except that it is found growing at lower elevations. P. rusbyi is not amenable to garden culture and I have had no experience with it. It has grown in the Edinburg Botanic Garden for many years.

Q. Can you describe each. A. P. kisoana is a choice miniature 3-4 inches, the entire plant is covered with white hairs which gives it a glistening appearance for it shines in sunlight. The three to five large flowers are on a short stalk in a deep rose shade. They are not difficult from seed but division is easy as the roots run underground horizontal from the parent plant and small plants appear often a foot away. It is a native of Japan. When the plant first breaks the ground in spring it appears as a ball of white cotton, from which the handsome foliage develops. P. polyneura is a larger plant in the same group (Cortusoides). The foliage is dentate and on longer stems, the flower stalk often 10-12 inches, slender and dainty topped by a cluster of 12-14 florets in a variety of shades of rose, pink, purple with an orange eye. These forms have been listed as P. veitchii and P. lichiangensis. From a packet of seed one may have a variety of colors in flowers and also some plants will be larger than others when mature. Both P. kisoana and P. polyneura are choice garden plants that bloom later than the Vernales. If left they will develop into large clumps in a rich, well drained shaded location. P. heucheri-folia has never proved long lived with me.

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Pruning in the Spring
By Al Rapp
Pruning, I believe is the most interesting of the many gardening chores. The professional gardener keeps his pruning shears active most of the year, however, the majority of pruning in the average yard should be done in the spring of the year (at this time). It is not too late to prune the still dormant plants. When the warming sun starts things into new growth, it is then time to start your spring pruning.

Why bother with pruning? Well there are many good reasons to prune. I will list the five that I think most important.
1. Pruning makes healthier plants.
2. Pruning makes bigger crops.
4. Keeps in check the spreading of numerous diseases.
5. Makes more shapely development of ornamental shrubs, trees and hedges. This adds to the overall appearance of your garden.

When pruning, keep in mind the purpose or object aimed at in pruning. There are no hard and fast rules to follow in shaping your trees, as each tree or shrub offers its own problem or challenge if you feel creative.

When pruning, keep in mind the purpose or object aimed at in pruning. The first step in my pruning is to cut out all dead, broken or diseased wood, next to shape the tree or shrub into a shape that is pleasing to my eye. The same plant may be pruned in many different ways, therefore, step back occasionally and check the results. Larger plants which may have been neglected for a few years may take two or even three days to prune, doing a little each day. The amateur will surely prune too little rather than too much, but if you should prune more severely than you think the plant needs, you will find in most cases the plant will grow far better than had you pruned too little. Some plants require having their centers opened for the sun to ripen the fruit or bring the flowers into full bloom.

I shape some plants according to their location or for a particular reason. For example, I have a apple tree planted at the southwest end of my greenhouse which completely shades the greenhouse on hot summer afternoons. Most others I prune to shape as suits my fancy.
Hints on Hard-To-Transplant Plants

By Ruth Bartlett Huston

We have all met up with plants that resent transplanting. They may be seedlings that are doing nicely in the seed flat but that “curl up their toes” when transplanted or again it may be cuttings that we are trying to root and simply refuse to strike. Here are a few bits and pieces that I have learned from personal experience through the years and from three other “lady nurserymen”.

I was trying to root Lithospernum cuttings and was enjoying 100 percent failure when a visit from a lady, gardening and selling on Hood’s Canal put me on the right track. She suggested that I obtain “thumb pots”, little square plastic pots, l”xl”x1/2”; fill them with tightly packed vermiculite and fit them into flats. Insert the cuttings in holes made with a knife blade. All cuttings of hard to root plants should be SMALL. Pack the vermiculite well about the cutting and place over bottom heat. An electric heat cable is the best. Watch the results are sometimes worth the effort. One way is to use an eyedropper. Have the seed in water and draw up one seed at a time. Not every seed will germinate but those that do have a much better chance of survival. When a good many of the bands contain little plants the “duds” can be removed to save space.

I transplant many vegetables. Some of these are in the hard class. I grow onion plants, blood root beets, corn, squash, New Zealand spinach, cucumbers and all beans as well as the more commonly grown tomatoes, peppers and cole family. The English have grown hard to transplant things on inverted sods with success. I have found this method only partially successful. When the plants are ready to move the sod is cut up and planted with their plant. I have had trouble cutting the sods neatly and the grass has a way of growing along with the plant. Perhaps the sod that I used was the wrong sort of grass or perhaps it wasn’t dead enough. There are advantages to this container starting. One is earliness, another is added safety from insect damage to the sprouting seed and the third is freedom from the hardest of weeding chores. I have transplanted cucumbers for years and squash and corn many times. Last year I have sent seed to quite a few of the “Robins.” If you others are interested I will send seed to you. Just send your request and a stamped and addressed envelope. These “Toms” are small fruited on a fairly large plant, very prolific, have a heavy skin and delightful flavor. They are subacid.

I tied them up but the three that were overlooked still produced well.

Eastern Membership Gathering

A one-day gathering of APS members is being planned for Saturday, May 12 in Falls Village, Conn. The program will include a visit to Millstream, the garden of Mr. and Mrs. H. Lincoln Foster, a Plant Show, Plant Sale, luncheon, and panel discussion on the cultivation of primroses in northeastern U.S. A detailed notice with reservation form will be mailed to APS members in the New England states, New York, New Jersey and Pennsylvania. Anyone else wishing to attend, please contact Mrs. Wallace Balla, 189 Taconic Road, Greenwich, Conn. 06830 telephone #203-661-4680.
PRIMULA AMOENA

Somewhere in its English sojourn, this lovely Caucasian lost its way in the woods of false nomenclature where it has remained in obscurity until the immediate present when its true identity is being brought back to light. The error was first perpetrated in botanical publications by giving P. amoena's name to the pink, red or violet acaulis native to Asia Minor (which primrose now prefers the name of P. Sibthorpii to P. acaulis rubra and which has been erroneously listed under the name of P. altica, a misnomer attaching itself to several oxlip-like primulas including the true P. amoena). From there it was but a step to unintentional mis-listing in trade catalogs, and oblivion became the fate of pretty Primula amoena.

P. amoena, as its name indicates, is of as pleasant a disposition as it is beautiful. Unlike the majority of the Vernales Section which includes such well-knowns as the polyanthus, acaulis, cowslip, oxlip, Juliae, etc., it is herbaceous. Its complete hardiness is unquestioned, hugging as it does the chilly heights of the Caucasus. This, together with its deciduous habit, makes it as amenable to our east and far north as to the west. In the west it blooms from late March or early April throughout the month.

The few existing descriptions of the genuine P. amoena has the scape no taller than from three to four inches, but ten seems to be more the normal height. It has also been likened to a mauve or purple polyanthus but the fact that the wide open flowers are held in a one-sided umbel together with its oxlip-like foliage puts it more in the oxlip class than the polyanthus. Nor is it always mauve or purple. Due to the fact that it ranges over a wide territory it develops varying local forms, and pink, rose, and occasionally white have been collected along with the mauve and purple varieties.

In 1890—the plant was introduced into England in 1831—a deep rose, beautifully fringed P. amoena, further described as Distinction, was exhibited at the Royal Horticultural Society and given the Award of Merit. In March, 1935, a violet colored form was exhibited by Major F.C. Stern which also received the Award of Merit. In March, 1938, a beautiful fringed P. amoena, further described as Distinction, was exhibited at the Royal Horticultural Society and given the Award of Merit. In March, 1938, a violet colored form was exhibited by Major F.C. Stern which also received the Award of Merit as a hardy border plant.

P. amoena is said to be a native of Armenia also, but so far, the only material that has come to hand is an account of its home in the Caucasus found in a most interesting travelogue, "Plant-hunting in the Caucasus" written by W.E. Th. Ingwersen for the R.H.S. Journal of October, 1936. In June and July of 1935 Mr. Ingwersen and a party of friends botanized parts of the tremendous range of the Caucasus in search of rare alpine plants. From the shelter hut on Mt. Elbrus (almost 18,500 feet), the hut itself at the edge of permanent snow, a stiff climb was made over black rocks and scree-like slides of black lava and there the first plants of P. amoena were found in its typical mauve-blue form. A short digression on the immediate surroundings adds additional climatic information the hail and sleet showers in mid-summer, the resulting avalanches, the green glist of hanging glaciers, slipping and grinding with each slide.

On Mt. Kazbek (over 16,500 feet) a short distance to the east of Elbrus, P. amoena was found in company with P. algida, akin to the Farinosaes; P. nivalis

Bayernii, a handsome and distinctive white primula said to be the only nivalid native to Europe; Gentianas pyrenaica and verna alata with campanulas everywhere, all at around 10,000 feet.

At another alpine spot of green, foaming torrents and primeval woods the party collected some striking specimens of P. amoena in pink, nearly rose, pale mauve, purple and a few albino types after the undergrowth gave way to moraine. Here, also, grew P. officinalis var. macrocalyx, a cowslip with an outsized calyx—together with primulas that gave every evidence of being hybrid between amoena and the large-calyxed cowslip.

Because P. amoena would easily cross with the other vernal primroses of its Section, it may prove itself of value in this way after distribution becomes possible.

Ed. Note: Recent attempts to locate seed of P. amoena have been futile; after again studying the above, it seems well worth while spending more time trying to relocate.

The Primrose Nicoll

The milk-white blossoms of the thorn
Are waving o'er the pool,
Moving by the wind that breathes along
So sweetly and so cool.
The hawthorn clusters bloom above,
The primrose hides below,
And on the lonely passer-by
A modest glance doth throw!
The humble primrose's bonnie face
I meet it everywhere;
Where other flowers disdain to bloom,
It comes and nestles there.
Like God's own light, on every place
In glory it doth fall;
And where its dwelling-place is made,
Its straightway hallows all!
Where'er the green-winged linnet sings
The primrose bloometh lone;
And love it wins deep love from all
Who gaze its sweetness on.

The stars are sweet at eventide,
But cold and far away;
The clouds are soft in summertimes,
But unstable they;
The rose is rich—but pride of place
Is far too high for me—
God's simple common things I love—
My primrose, such as thee!
I love the fireside of my home,
Because all sympathies,
The feelings fond of everyday,
Around its circle rise.
And while admiring all the flowers
That summer suns can give,
Within my heart the primrose sweet,
In lowly love doth live!

The above poem was submitted by Mrs. Emma Gordon, Tacoma Society President. She thought some of the primrose collectors might like this gem taken from "The Ladies Vase of Wild Flowers" by Mrs. Pamela Colman, who entered it according to Act of Congress, in the year 1846 in the Clerk's Office of the District Court of Massachusetts. Emma adds "anyway, this poem described the feelings of many of us about the primrose".

AMERICAN PRIMROSE SOCIETY
The Strange Story of the Auricula

Professor Sir Rowland Biffen F.R.S.*

*Ed. Note: The following article is reprinted from a 1950 Quarterly. Sir Rowland Biffen passed away in 1949, and was a Professor of Agricultural Botany at Cambridge University. He was a well-known auricula authority. It is printed again in response to many requests from newer members for background material on the auricula.

Attempts to trace the history and origin of our old-fashioned garden plants form one of the many pleasant byways of horticulture. It is a task which can keep one busy throughout the year, for it involves a study of the literature of bygone centuries during the dead season, and the more practical work of cultivating every variety one can raise or acquire during the growing period.

I drifted by slow stages into a study of the auricula. Study, is perhaps a too high-sounding word to use for what came to be in reality a mere pottering with complex scientific problems which are to be solved with any approach to finality only by someone with the resources of a considerable research station at his disposal. However, the incompleteness of the following account of its results may be a meritorious feature, for it may lead some other gardener to carry the story still further.

The cultivation of the auricula has a long, and in some respects, well-documented history. It dates back in this country to at least 1597, when the first description of the plant was published in Gerard's classical "Herball." By then it was apparently widely grown on the Continent, and the tradition that it was introduced here by refugees from the Netherlands about the year 1575 may well be based on fact. It became an established garden plant rapidly, for in Sir Thomas Hanmer's "Garden Book", printed in 1659, some forty named varieties are described.

Even at this early period the colour range was a wide one, for he mentions "yellow, white, haire colour, orange, cherry, crimson, purple, murrey, tawny, olive, cinnamon, ash, dun," and others. Other contemporary accounts add still further to this last, these descriptions can convey only a vague impression of the flowers of the seventeenth century, but fortunately the Dutch and Flemish artists of the period included many auriculas in the noble bunches of flowers they delighted in painting. These show that the old-world varieties were counterparts of those now grown in our borders under the name of alpine auriculas, except for the fact that the present-day varieties are decidedly more high-sounding and often extraordinarily expensive, have become scarcer still. In fact, they are said to be extinct. But I have been fortunate enough to raise a few, and hope they may prove a nucleus for the recovery of the race, for their gay colour-effects are a pleasing foil to the quiet formality of the show auriculas.

It was only after some three centuries of cultivation that the origin of these alpine auriculas was discovered. Then Kerner's observations made it practically certain that the plants first collected in the high Alps were natural hybrids between two very unlike species, Primula hirsuta and P. auricula. The former has rosy-pink flowers and bright green foliage, the latter sweetly scented yellow flowers and, for the most part, leaves with a silvery cast. This effect is due to the fact that the green ground of the leaf is obscured to a variable extent by a coating of microscopic glandular hairs, the "meal" of the florists. If slight, the leaf colour is a grey-green; if dense, white. It may also be concentrated on edges of the leaves, thus outlining them with an exquisite silver margin. Kerner's views, much criticized at the time and then more or less forgotten, are undoubtedly correct, though the full story is more complex than could be foreseen in the days when plant breeding was a mystery rather than a somewhat bewildering science.

During the period 1650-1750 no changes are recorded in the make-up of the flower, and an observer might well have considered that it was more or less stabilized, and that further striking changes were unlikely. But about the end of it there occurred one of the most extraordinary developments known to florists, when a strange and totally distinct type of auricula came into existence. This had two outstanding characteristics: the edges of the flowers were green, grey or white, and in the centre of each was a zone of shining white meal the "paste"—a feature still not known in any other flower. This sudden change (for no one can imagine that anyone thought of a flower with these characteristics and then set out to build it up by a process of selection) was the result of the replacement of the normal petals by structures which, even in microscopic details, are identical with the foliage leaves. The paste, too, is a leaf characteristic seen to perfection at the base of the leaves forming the calyx of the flower. The green, grey and white edges of the flowers thus represent the various stages of mealininess seen in the foliage of P. auricula.

The mutation started the auricula off on a new course of development. The presence of the paste, which added immensely to the attractiveness of this strange flower, had one disadvantage, for solid as it appears to be, a single drop of rain ruins it. This led to the auricula becoming, a pot plant and hence, almost inevitably, an exhibition plant. So rapidly did this phase of its culture extend that by 1798, in the interests of judges and exhibitors alike, florists found it necessary to determine the "points" of flowers suitable for the show-bench, and a schedule of seventeen requirements was drawn up which, almost unchanged, still defines the perfect flower. By the beginning of the nineteenth century the edged auricula had become everyone's flower, and surviving nurserymen's catalogues show that hundreds of distinct varieties have been raised. Coloured plants of a large selection of these were published in 1828 in Sweet's "Florist's Guide" and show that the flower, by then, had reached a stage of perfection equal to that of the present day.

These early years of the nineteenth century form a peculiarly interesting horticultural period. Gardeners were no longer content with the natural beauty
of their flowers, and they sought a formality and refinement which, once seen, is immediately appreciated, although it is difficult to describe. It is dependent on the combination of a complex of attributes such as the proportions of the various parts of the flower, the shape of its outline, its markings, its texture, and so on. The assembly of all these features constituted as difficult a breeding problem as one could ask for, and even nowadays it has to be admitted that the resulting production of the perfect flower is mostly a matter of chance. Still, it was tackled, and by none more thoroughly than the weavers and miners of Lancashire, who during the 1850's were producing flowers, which heresay has it, were the finest ever raised.

There is nothing known so far as to the date when the two other sections into which auriculas were classified not in their first appearance. One of these, the “Fancy” is in reality an edged auricula in which the colour brought in by Primula hirsuta has disappeared, leaving the flower a symphony in green and golden-yellow. Good and distinctive varieties are easily raised, but the group has never been so popular as the second, known as the “selfs”. The sumptuous colouring of these selfs and the presence of a paste suggest that they are hybrids between alpine and edged varieties, and crosses between these sections tend to confirm this view. But they also appear in families raised from self-fertilized seeds from both the grey-and white-edged plants, so that a multiple origin seems almost a certainty, and only further breeding experiments can clear the matter up. They are well worth the making, for the mixture of plants which result will almost certainly contain a few fit to be included in any amateur’s collection.

WISH CORNER

The Quarterly will now offer this column as an aid to members trying to locate specific seed or plants. This will be a service without charge and will be included in subsequent issues, with a much larger column.

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List your request, and your return address. Those desiring to help satisfy items desired will please contact those making the request NOT the Editor.

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